Patent Claims

1. An object of value with a security element, wherein the security element has at least one liquid-crystalline material, characterized in that the liquid-crystalline material effects a linear polarization of light.

2. The object of value according to claim 1, characterized in that the liquid-crystalline material is formed by a lyotropic liquid crystal.

3. The object of value according to claim 1 or 2, characterized in that the liquid-crystalline material has a layer thickness of 100 to 1000 nanometer.

4. The object of value according to any of claims 1 to 3, characterized in that the liquid-crystalline material is applied all-over or in certain areas, in particular in the form of alphanumeric characters and/or patterns, the liquid-crystalline material in particular effecting a locally different polarization.

5. The object of value according to any of claims 1 to 4, characterized in that the liquid-crystalline material is applied onto a background, which has patterns and/or characters.

6. The object of value according to claim 5, characterized in that the background is printed, is produced by inking a substrate or with the help of a laser.

7. The object of value according to any of claims 1 to 6, characterized in that the liquid-crystalline material, the background and/or a further layer has properties testable by machine and/ or visually testable.

8. The object of value according to any of claims 1 to 7, characterized in that the security element is a label.

9. The object of value according to any of claims 1 to 8, characterized in that the object of value is a security paper, a security document or a product packaging.

10. The object of value according to any of claims 1 to 9, characterized in that the security element has at least one further layer producing optical effects and/ or a protection layer, which cover at least a part of the security element.

11. A security element for protecting objects of value, wherein the security element has at least one liquid-crystalline material, characterized in that the liquid-crystalline material effects a linear polarization of light.

12. The security element according to claim 11, characterized in that the liquid-crystalline material is formed by a lyotropic liquid crystal.

13. The security element according to claim 11 or 12, characterized in that the liquid-crystalline material has a layer thickness of 100 to 1000 nanometer.

14. The security element according to any of claims 11 to 13, characterized in that the liquid-crystalline material is applied all-over or in certain areas, in particular in the form of alphanumeric characters and/or patterns.

15. The security element according to any of claims 11 to 14, characterized in that the carrier of the liquid-crystalline material is a birefringent foil with predetermined phase shift, in particular of a quarter wave or half wave.

16. The security element according to any of claims 11 to 15, characterized in that the security element has at least one further layer producing optical effects and/ or a protection layer, which cover at least a part of the security element.

17. The security element according to any of claims 11 to 16, characterized in that the security element is a security thread, a lookthrough register or a planchet.

18. A transfer material for producing a security element, characterized in that the transfer material has a carrier material, on which is disposed at least one liquid-crystalline material, wherein the liquid-crystalline material is formed by a lyotropic liquid crystal.

19. The transfer material according to claim 18, characterized in that the carrier material is formed as a hot stamping foil.

20. A method for producing an object of value or security element, characterized in that

- a substrate is provided,
- onto this substrate at least one lyotropic liquid-crystalline material is applied.

21. The method according to claim 20, characterized in that the at least one lyotropic liquid-crystalline material is present in a solution, which under the exertion of directed shearing force is applied onto the substrate, and that a solvent forming the solution is removed.

22. A method for testing an object of value, characterized in that there is checked,

- whether light is linearly polarized and/ or
- whether the light has a color effect and/or
- whether a depolarization of the polarized light and/or a not taking place of the color effect occurs when the light passes through the bank note substrate.

23. The method according to claim 22, wherein light diffusely reflected and/or transmitted by the object of value is checked.